

***LineUp With Math™* Alignment to
Utah Mathematics– 5th Grade [2003]
Intended Learning Outcomes, Core Standards and Objectives**

Intended Learning Outcomes: By the end of fifth grade students will be able to:

1. Demonstrate a positive learning attitude toward mathematics

| Intended Learning Outcome | <i>LineUp With Math™</i> Activities |
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| b. Pose mathematical questions about objects, events, and processes. | --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. |

2. Become mathematical problem solvers.

| Intended Learning Outcome | <i>LineUp With Math™</i> Activities |
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| a. Determine the approach, materials, and strategies to be used in setting up a problem. | --Explore and apply a variety of strategies to optimize the solution of air traffic control conflicts. |
| b. Model problem situations in a variety of ways. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. --Choose and apply a variety of strategies to optimize the solution of air traffic control conflicts. |
| d. Construct and use concrete, pictorial, symbolic, and graphical models to represent problem situations. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. |
| g. Solve problems in both mathematical and everyday contexts. | --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. |
| h. Recognize that there may be multiple ways to solve a problem. | --Explore and apply a variety of strategies to optimize the solution of air traffic control conflicts. |
| i. Persevere in developing alternative problem-solving strategies if initially selected approaches do not work. | --Explore and apply a variety of strategies to optimize the solution of air traffic control conflicts. |

3. Reason mathematically.

| Intended Learning Outcome | <i>LineUp With Math™</i> Activities |
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| a. Draw logical conclusions and make generalizations. | --Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations. |
| c. Use models, known facts, and relationships to explain reasoning. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. |

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| | --Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations. |
| d. Make precise calculations and check the validity of the results in the context of the problem. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. |
| g. Analyze mathematical situations by recognizing and using patterns and relationships. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. |
| h. Justify answers and solution processes. | --Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations. |
| 4. Communicate mathematically. | |
| Intended Learning Outcome | <i>LineUp With Math™</i> Activities |
| a. Represent mathematical ideas with objects, pictures, and symbols. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. |
| b. Express mathematical ideas to peers, teachers, and others through oral and written language. | --Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations. |
| d. Explain mathematical work and justify reasoning and conclusions. | --Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations. |
| 5. Make mathematical connections. | |
| Intended Learning Outcome | <i>LineUp With Math™</i> Activities |
| b. Recognize the role of mathematics in the classroom, school, and community. | --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. |
| c. Explore problems and describe and confirm results using various representations. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. --Explore and apply a variety of strategies to optimize the solution of air traffic control conflicts. |
| d. Recognize the connections between mathematics and other content areas and apply mathematical thinking and problem solving in those areas. | --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. |
| 6. Represent mathematical situations. | |
| Intended Learning Outcome | <i>LineUp With Math™</i> Activities |
| a. Create and use representations to organize and communicate mathematical ideas. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. |

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| b. Represent mathematical concepts using concrete, pictorial, and symbolic models. | --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. |
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| Standard 4 Students will understand and apply measurement tools and techniques. |
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| Objective 2 Determine measurements using appropriate tools and formulas. |
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| Objective d. Calculate <i>elapsed time</i> within a.m. or p.m. time periods. | <i>LineUp With Math™</i> Activities --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. |
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